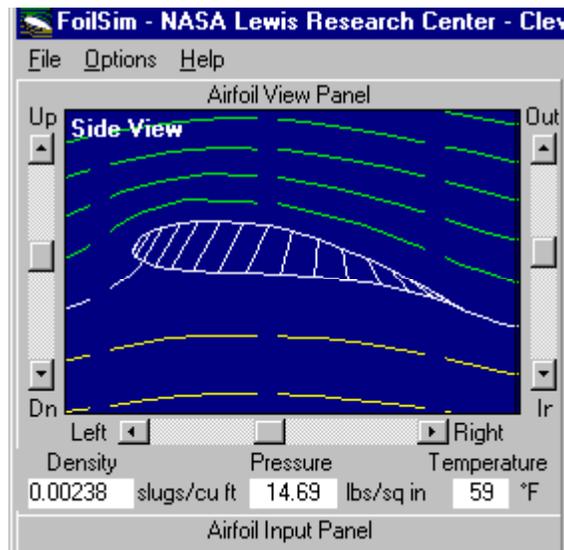


FoilSim--Basic Aerodynamics Software Created

FoilSim is interactive software that simulates the airflow around various shapes of airfoils. The graphical user interface, which looks more like a video game than a learning tool, captures and holds the students' interest. The software is a product of NASA Lewis Research Center's Learning Technologies Project, an educational outreach initiative within the High Performance Computing and Communications Program (HPCCP).



Airfoil view panel within FoilSim.

This airfoil view panel is a simulated view of a wing being tested in a wind tunnel. As students create new wing shapes by moving slider controls that change parameters, the software calculates their lift. FoilSim also displays plots of pressure or airspeed above and below the airfoil surface. A satisfied user comments, "To be able to change the parameters of the experiment with a click of a button is fantastic, as is the ability to observe the results instantaneously." An additional feature of the program is "Play Ball," where students learn more about aerodynamics through controlling the conditions of a baseball pitch, including altitude, speed of pitch, and spin of pitch.

Interactive lessons that accompany the package prompt students to engage in problem solving and discovery. Teachers are impressed at how well the software and lessons inspire students to explore their intellectual potential. One teacher says, "FoilSim allows students to hypothesize and provides them with immediate, nonthreatening feedback. They really seem to begin to appreciate the process of experimenting rather than just getting the correct answer."

Originally, the code was written for college level engineering students. Adjustment of the code to the high school level resulted in FoilSim, which was created and tested by a

diverse team composed of NASA employees, contractors, educators, and students. Lewis' Learning Technologies Project is a part of NASA's agencywide Learning Technologies Project, which is managed by the NASA Ames Research Center.

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